

CLAIMS

1. A stretchable transfer conveyer wherein a pair of guide rails respectively provided with guide surfaces for guiding both side surfaces of a transferred article in a transfer direction are extended in the transfer direction and wherein flexible endless belts for supporting lower surfaces at both sides of the transferred article, whose both side surfaces are guided along the guide surfaces, to transfer the transferred article in the transfer direction are drivingly connected to a drive device and are carried along plural rotational members to be circulated, the conveyer being characterized in that a stretching mechanism is provided at one end of each of the guide rails to be stretchable in the transfer direction; that a stretchable guide surface at a facing surface of the stretching mechanism is formed into a flat surface continuous and even with the guide surface regardless of the stretched position of the stretching mechanism; and that plural rotational members are provided on the facing surface of the stretching mechanism for circulatably supporting the endless belt.

2. The stretchable transfer conveyer as set forth in Claim 1, characterized in that the stretching mechanism comprises an adjuster member mounted on an end of each guide rail to be movable in the transfer direction and provided with an adjuster guide surface being a flat surface even with the guide surface; and a complementary member insertable into a space which is made between the guide surface of the guide rail and the adjuster guide surface of the adjuster member when the adjuster member is moved in the transfer direction and provided with a complementary guide surface for forming the stretchable guide surface together with the adjuster guide surface.

3. The stretchable transfer conveyer as set forth in Claim 2, characterized in that the complementary member is mounted on the end of the guide rail to be movable in a complementary direction intersecting with the transfer direction with the complementary guide surface defining a flat surface continuous and even with the guide surface; and that the adjuster member and the complementary member are joined at respective joint surfaces which are inclined relative to the transfer direction as well as to the complementary direction whereby the adjuster guide surface and the complementary guide surface are jointed at the respective joint surfaces to define the stretchable guide surface as a continuous and even flat surface.

4. The stretchable transfer conveyer as set forth in Claim 3, characterized in that the adjuster member has mounted thereon a first rotational member for winding therearound one end of a horizontally traveling portion of the endless belt and a second rotational member for downwardly bending the endless belt run out from the first rotational member; that the complementary member has mounted thereon a third rotational member for horizontally bending the endless belt run out from the second rotational member and a fourth rotational member for roughly vertically bending the endless belt bent horizontally; and that the guide rail has mounted thereon a fifth rotational member for horizontally bending the endless belt run out from the fourth rotational member.

5. The stretchable transfer conveyer as set forth in Claim 4, characterized in that the complementary direction is a vertical direction perpendicular to the transfer direction; that the adjuster member and the complementary member are joined at the joint surfaces which are inclined 45 degrees relative to the transfer direction; that the adjuster guide surface and

the complementary guide surface are joined along the joint surfaces to constitute the stretchable guide surface; that the adjuster member has mounted thereon the first rotational member for winding therearound one end of the horizontally traveling portion of the endless belt and the second rotational member for downwardly bending the endless belt run out horizontally from the first rotational member; that the complementary member has mounted thereon the third rotational member for horizontally bending the endless belt run out from the second rotational member and the fourth rotational member for roughly vertically bending the endless belt bent horizontally; that the guide rail has mounted thereon the fifth rotational member for horizontally bending the endless belt run out from the fourth rotational member; and that the third rotational member is moved as being restrained by a guide vertically provided on the adjuster member and another guide horizontally provided on the complementary member.

6. The stretchable transfer conveyer as set forth in any one of Claims 3 to 5, characterized in that a feed device is provided for moving the adjuster member in the transfer direction; and that means is provided for moving the complementary member in the complementary direction in linkage relation with the movement of the adjuster member.

7. The stretchable transfer conveyer as set forth in any one of Claims 1 to 6, characterized in that the transferred article is a printed board or a board for mounting electronic components thereon.

8. A method of stretching a transfer conveyer wherein a pair of guide rails respectively provided with guide surfaces for guiding both side surfaces of a transferred article in a transfer direction are extended in the transfer direction and wherein flexible endless belts for supporting lower surfaces at

both sides of the transferred article, whose both side surfaces are guided along the guide surfaces, to transfer the transferred article in the transfer direction are drivingly connected to a drive device and are carried along plural rotational members to be recirculated, the method being characterized by mounting an adjuster member, which is provided with an adjuster guide surface being a flat surface even with the guide surface, on one end of each guide rail to be movable in the transfer direction; by providing a complementary member, which is provided with a complementary guide surface being a flat surface even with the guide surface, to be movable in the complementary direction intersecting with the transfer direction with the guide surface and the complementary guide surface defining a continuous and even flat surface; and by joining the adjuster member and the complementary member at respective joint surfaces which are inclined relative to the transfer direction and the complementary direction so that a stretchable guide surface is formed by joining the adjuster guide surface and the complementary guide surface along the joint surfaces to define the continuous and even flat surface.